

Research Management and Administration

The Michigan Department of Transportation (MDOT) is in the process of revising its State Planning and Research (SPR), Part II, Program administration manual. The current manual in effect is dated July 2003.

The new manual will reflect significant changes in how SPR, Part II, Program research is managed and administered at MDOT. Selected documents that highlight both the new management structure and the new manual have been assembled in this package.

Attachment 1. The new research management proposal

This summary document provides the rationale behind the new management structure, answering the questions of why the new structure is necessary and how it will benefit MDOT.

Attachment 2. Oversight, advisory and management committee structure

A graphical representation of the tiered management structure

Attachment 3. Composition and responsibilities for

- **The Research Executive Committee (REC)**
- **The Research Advisory Committees (RACs)**
- **The Research Advisory Panels (RAPs)**

Attachment 4. What's new in the research administration manual

A summary of key changes in the new draft since the July 2003 version.

Attachment 1.

MDOT Office of Research and National Best Practices

THE NEW RESEARCH MANAGEMENT PROPOSAL

Why is it necessary?

How does it benefit The Michigan Department of Transportation?

The Michigan Department of Transportation's (MDOT's) Strategic Plan supports a multi-modal approach to research. With the proposed structure, the Research Executive Committee (REC) will have a complete view of how all research dollars are being spent within MDOT and will be able to leverage those dollars with greater efficiency.

- The proposed plan provides consistency and an accurate picture of all research being done in the department. The Research Advisory Committees (RACs) will:
 - Promote an understanding of the agency's research needs and priorities from the REC to the rest of the bureaus.
 - Advance research results (technology transfer) which is needed throughout the department, especially integrated multi-modal results.
 - Recommend research projects to the REC for funding, helping align research priorities with the strategic direction of MDOT.
 - Prioritize research needs to address critical agency issues by providing input into the creation of research problem statements.
 - Start the implementation process by describing outcomes and benefits expected of the recommended research.
- The proposed plan establishes a reporting structure that enables tracking and reporting of all MDOT research and implementation, not just those funded by the State Planning and Research, Part II, Program.
- The proposed plan will redistribute the responsibilities of project management.
 - This plan gives the engineers in the operations areas who currently manage research projects more time to focus on the technical aspects of research work plans and the implementation of the results. Individuals now serving as project managers (PMs) will assume a role of technical oversight to the research projects while leaving the administrative functions to dedicated Office of Research and National Best Practices staff (Research Managers).
 - This plan provides better monitoring and management of the projects in the various core technical areas.
- The proposed plan will embrace a multi-modal perspective of research needs. RAC member selection will be based on participant expertise and balanced representation among the interested functional areas. This will promote an overall multi-modal approach, rather than traditional areas of research continuing to dominating research dollars. For example, it is suggested that the Program and Project Development RAC will include representatives of Bridges and Structures, Design, Real Estate Service, and Urban Corridors.

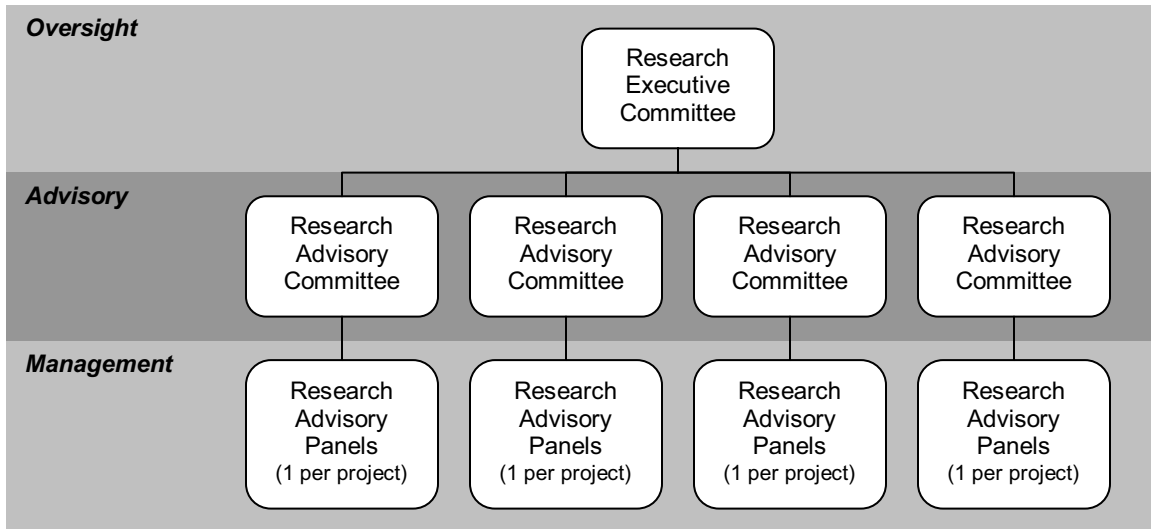
Attachment 1.

Issues that need to be addressed concerning MDOT's research programs.

- Human resources
 - The ability for the system to continue on its current course is diminishing with greater demand on MDOT engineers as staff continues to shrink.
 - MDOT wants to increase the number of research projects that are funded, but cannot use some of its available research funding due to the lack of availability of project managers (engineers being asked to broaden their position responsibilities with no increase in resources).
 - ORNBP has only one consultant in the area of pavement research to provide project management. This consultant is only available part-time.
 - All other projects are assigned to various engineers throughout the department as a fraction of their job duties. As a result, there is little consistency of knowledge or time commitment among the acting project managers.
 - Increasingly, research project management is becoming less of a priority in many areas due to staffing constraints and consolidations. Some priority projects do not make the proposed program due to lack of available program managers in that specialty area.
 - *The average number of dedicated program managers among the other states is one full-time manager per \$1 million of research funding. MDOT's SPR, Part II, Program manages \$8 million of research without any full-time PMs.*
- Timeliness
 - MDOT experiences severe delays in the invoicing of billable projects; this affects the entire program's budget and funding.
 - A snapshot of MDOT's program invoicing taken on June 7, 2006, showed three projects had not completed their invoicing for fiscal year 2005, and approximately 28 percent of billable projects had not yet been invoiced through the second quarter of fiscal year 2006.
 - Some universities have gone more than a year without submitting an invoice for work performed on a project. Often PMs have restrict hours available to follow up and manage all the current research projects that have been assigned to them. As a result, quarterly reports are often late and incomplete, and final reports are received up to two years after the project has closed.
- Oversight and accountability
 - There are not any systems or procedures in place to gather or calculate department-wide research information or statistics.
 - There is no evaluation, oversight, or reporting of the universities, PIs, or research staff on their effectiveness in completing research projects for MDOT.
- Implementation and tech transfer
 - Technology transfer that is occurring within MDOT typically cannot be tracked or reported in any systematic fashion. MDOT has acknowledged that it is critical to increase result implementation and monitor all research activity in a consistent, detailed format to allow for accurate reporting. This will be a tool to develop realistic milestones leading MDOT to reach their long-term goals.
 - Where other states often have dedicated implementation programs, MDOT does not have implementation processes or procedures in place for research results.
 - There is not a central "clearing house" for all MDOT research results.

Attachment 2.

Oversight, advisory and management committee structure



Proposed Research Executive Committee (REC)

- Its purpose is to set the strategic direction for the solicitation of project proposals.
- The REC will guide and provide the direction of MDOT research.
- This committee will meet 4 to 6 times per year.
- Define research goals which serve as the basis for project selection.
- Establish the Research Advisory Committees (RACs).
- Approve the recommended research programs/projects.
- Review key research finds.
- Evaluate and finalize recommendations to implement research findings.
- Members:
 - The COO, Co-Chair of REC
 - The CAO, Co-Chair of REC
 - The Deputy Directors (RAC Chairs)
 - Region Engineer (2 year appointment)
 - Engineer of Research and National Best Practices
- The value added:
 - Will provide oversight to align research dollars with the goals and vision of the department.

Attachment 3.

Research Advisory Committee (RAC) Chairs

- Bureau or Region level executives
 - Represent their bureaus on REC
 - Disseminate information to the RACs associated with their bureaus or regions
 - Select research experts:
 - the Focus Area Managers (FAMs) for the various specialty areas within a bureau
 - a research engineer contact per region
- Will be established to promote the understanding of:
 - The agency's research needs
 - Research priorities
 - Advancing MDOT's research results, when applicable
 - Promote integrated multi-modal results.
- Each RAC is comprised of 6 to 8 members.
 - Chaired by members of the REC
 - An FHWA Representative
 - An ORNBP Representative
 - The appropriate FAMs
- FAMs are selected by the RAC Chairpersons.
- Both the level of expertise and balanced representation among the interested functional areas should be considered when selecting RAC members.
- Align research projects with the strategic direction of MDOT.
- Start the implementation process by describing outcomes and benefits expected of the recommended research.
- Provide input into the creation of research problem statements.
- Prioritize research needs to address critical MDOT issues.
- Recommend to the REC research projects to be funded.
- Receive reports and presentations on research results.
- Meet 4 to 6 times per year.
- Participants are expected to:
 - Have an understanding of the agency goals, activities, and priority management issues in their office and the agency.
 - Be able to discuss the relative urgency of research and development needs across MDOT.
 - Be interested in research and development.
 - Have time to proactively participate.
 - Have the ability to influence budget decisions in support of implementation of research results where warranted.
- Value added:
 - These groups will help implement directives from the REC
 - Share info from the RAC with REC and ORNBP
 - This group will help ORNBP meet the need of accountability of dollars spent, implementation of results, and product quality for our customers.

Research Advisory Panels (RAPs)

- Are assigned to each active project
 - Chaired by the FAM or designee
 - FHWA representative available
 - RM assigned from ORNBP according to the project fund
 - Selected Project Engineer(s) or Advisor(s)
 - PI(s)
 - TM(s)
- Panel members are selected by the FAMs
- The appropriate RAC Chair will review and approve of project advisors on the panel as a check and balance for possible conflicts of interest and to insure appropriate representation
- Evaluate the recommendations for implementation
- Provide technical and policy guidance for the projects
- Receive updates on project progress
- Make recommendations on funding for implementation plans
- Provide input for MDOT participation in national research, i.e.:
 - Transportation Research Board,
 - NCHRP, and
 - Transportation Cooperative Research Program problem statement submittal and ranking;
 - NCHRP panel nominations; etc.
- Provide input and feedback to MDOT's ORNBP on research programs and procedures
- Value added:
 - Group to monitor, assist, and make recommendations regarding the individual research projects maximizing a favorable result for MDOT and eventual implementation.

Attachment 4.

Key Changes to the MDOT Manual from the July 2003 Edition

State Planning and Research, Part II, Program funding is managed by MDOT's Office of Research and National Best Practices

Research is administered by three tiers of committees: Oversight (REC), Advisory (RAC) and Management (RAP)

All work not performed in-house at MDOT will be selectively bid

The responsibilities of the MDOT "project manager" have been divided into two new roles: the Project Engineer (for technical management) and the Research Manager (for administrative management)

Prior FY invoices will only be paid if submitted within two months of the new FY (before December 1).

Contractor performance evaluations will be used to help select contractors for future projects

Payment of final contractor invoices will depend on satisfactory completion of final reports

Program development, project selection and implementation processes have been changed to reflect efforts of ORNBP staff to improve research management

Internal MDOT processes (such as accounting and invoicing) have been brought up-to-date
